REMARKS

1. CLAIM 7 IS A RADICAL IMPROVEMENT OVER HAYTER.

Applicant believes the invention as now claimed is patentable over the outstanding rejection because his invention is a radical improvement over the Hayter device.

Hayter's device is simply defective and it shall be, in fact, shown below to produce erroneous results. In summary, Hayter's shortcomings are attributed to his selected structure. Hayter forwards his cells first to his sustainable rate scheduler and, in the case of limiting the peak rate, forwards the cells that are output from his sustainable scheduler to his peak rate scheduler. Due to this structure, Hayter's sustainable rate scheduler cannot take into account the activity of his peak scheduler. As a result, Hayter's sustainable rate scheduler sometimes forwards cell streams at a rate higher than allowable. As will be described, this occurs, for example, when a previous transmission has filled a portion of Hayter's peak rate scheduler.

By contrast, the present invention overcomes Hayter's shortcomings by providing a completely different structure. Claim 7 provides a second scheduler that schedules upper transmission rates to precede the first scheduler that schedulers lower rates. The significance of this is taught in the specification, which states that the inventive arrangement "results in particular in the capability to control both a lower limit and an upper limit of the cell rate" page 4, lines 9-13. With this improved structure, Applicant has found that his solution produces correct results and therefore is superior.

2. NO MOTIVATION:

There is no motivation to rearrange Hayter. The language in Hayter at col. 4, lines 7-10, refers to the operation of the individual schedulers, not to the arrangement of his sustainable and peak rate schedulers. Regarding the boiler plate language of col. 4, lines 11-15, in Hayter, we respectfully request the Examiner to resist the temptation to rearrange Hayter in hindsight of the present invention.

3. THE PREVIOUS REJECTIONS MISSED A CLAIM ELEMENT.

In addition, the previous rejections were improper and cannot form the basis for a rejection. Claim 1 states that the second scheduler is provided "**depending on the queue identifier**". The previous rejections missed applying this claim element. We note that the QID of the background has other stated functions, namely, assisting with the storage of the cells.

4. THE CLAIMS RECITE GENERATING THE LOWER RATE ON THE BASIS OF THE SCHEDULING IN THE UPPER RATE SCHEDULER

As noted, Hayter cannot base his sustainable rate scheduler on his peak rate scheduler.

By contrast, the present invention claims in claim 17 "controlling the operation of the first scheduler dependent [lower rate scheduler] on a result of the second scheduler [upper rate scheduler]." Furthermore, independent claim 18 recites "generating, by the second scheduler, an initial planning control signal that in part represents a scheduling of the second scheduler; and setting the lower transmission rate of the particular connection by the first scheduler in response to the initial planning control signal generated by the second scheduler" and claim 21 recites "the first scheduler limits the lower transmission rate in accordance with the initial planning control signal when the transmission rate of the data packets are to be limited."

According to the specification, "the result of the first stage [the claimed second scheduler] is used as an input signal for the second stage [the claimed first stage]... results in particular in the capability to control both a lower limit and an upper limit of the cell rate", page 4, lines 8-13.

Even if there were motivation to rearrange Hayter, the resulting arrangment would still be missing the feature of controlling the first scheduler dependent on the result of the second scheduler. It would then take an even further motivation to thereafter modify Hayter a second time to include this additional feature.

5. THE PRESENT INVENTION UTILIZES A QID.

The invention as claimed in Claim 7 utilizes a QID identifier which causes the second scheduler to precede the first scheduler. This is superior to Hayter because Hayter transmits the cells themselves to his schedulers. As a result, Hayter cannot avoid the situation where he overburdens his Peak Rate Scheduler as previously discussed. Of course, the present invention can include the feature of sending the cells to the schedulers, but it is the QID which is employed to determine how the cells are transmitted. Hayter has no such feature.

The QID also allows the present invention to compare the results of transmission at the input stage by feeding back transmission data from the output to the input and comparing this to the actual transmission. This is expressed in claim 13 which states "feeding back a result of reading out the data packets from at least one of the buffer stores representative of the current storage levels of the buffer stores to the input device" and further in claim 14 " influencing the operation of the second scheduler based on the result fed back to the input device."

Hayter has no such feedback. Indeed, because of Hayter's inflexible cell forwarding arrangement, it would be difficult for Hayter to control the operation of his schedulers based on feedback because he has already forwarded his cells to his schedulers. That said, of course the present invention can transmit cells to the schedulers as well to, for example, store the cells in a buffer.

6. PROOF THAT HAYTER IS DEFECTIVE

In support of Applicant's proposition that the invention is a patentable improvement over Hayter, Applicant's representative here provides a proof that demonstrates that Hayter is defective.

As previously mentioned, Hayter fails because he neglects to take into account the PCR during the SCR and, indeed, cannot take into account the PCR because of the manner in which he chose to arrange his device. To make a more concrete example, we examine a typical situation in which Hayter's PCR has previously stored a cell stream and is currently outputting that cell stream at a rate of 70 Mbps. It is not uncommon, for example, to set the total bandwidth to100 Mbps.

Under such a condition, Hayter's system fails when a current cell connection includes a cell stream having a peak cell rate. Take for example a typical cell connection having a first cell stream CS1 with a maximum sustainable rate of 50 Mbps and a second cell stream CS2 with a maximum peak rate of 90 Mbps. In Hayter's system, the first cell stream CS1 would be transferred from his SCR at the rate of 50 Mbps, since this is within the maximum sustainable rate.

The second cell stream CS2 is transferred to the PCR because the total bandwidth (50 Mbps CS1 + 90 Mbps CS2 = 140 Mbps > 100 Mbps total bandwidth) would be exceeded. The SCR transfers the second cell stream CS2 to the PCR with a rate of 50 Mbps, because the SCR has already allocated 50 Mbps of the total 100 Mbps bandwidth for the first cell stream CS1.

However, the PCR is currently outputting the previous cell stream at 70Mbps. In total, therefore, Hayter's PCR sets a peak rate transmission of 120Mbps, which is clearly over the maximum bandwidth of 100 Mbps allocated.

7. THE REMARKS OF THE ADVISORY ACTION ARE REFUTED.

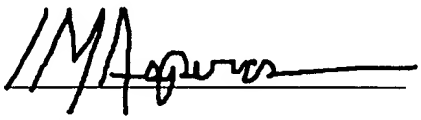
Applicant's attorney held a telephone conversation on Oct. 22, 2002. Applicant respectfully does not agree with the statements which may or may not have

been represented by the attorney during that conversation. Applicant thanks the Examiner respectfully for granting the interview. However, Applicant would like to indicate that Applicant did not have the opportunity to be involved in the conversation and kindly asks the Examiner that the statements in the Advisory Action of Oct. 28, 2002, be removed or acknowledged that they are not Applicant's statements. Specifically, Applicant does not agree that the background and Hayter teaches a first scheduling method, a second scheduling method and a queue identifier. Nor does Applicant agree that Hayter teaches bypassing. Applicant contends that bypassing infers that the cells are circumvented around Hayter's scheduler. This is contrary to what is shown in Hayter's Fig. 2 which shows that Hayter sends the cells to both schedulers. Applicant thanks the Examiner in advance for his understanding and cooperation.

8. CLOSING REMARKS

Applicant thanks the Examiner and looks forward to receiving an expedited and favorable decision in this case.

Sincerely,



December 3, 2002

eSignature
I Marc Asperas
Siemens AG
US Patent Reg. No. 37,274

AMENDED CLAIMS WITH MARKED UP CHANGES

Please amend claims 7-16 as follows:

7. (Amended) A method for optimizing the utilization of connecting sections in systems in which information is transmitted in data packets, the method comprising the steps of:

providing a first scheduler for scheduling transmission of the data packets [method] by [means of] which corresponding connection parameters, which are representative of lower transmission rates of the data packets, are guaranteed during a transmission process;

providing a queue identifier which is stored in a packet header, said queue identifier including information related to a transmission rate of an associated data packet; and

providing a second scheduler for scheduling transmission of the data packets [method which may] to precede the first scheduler [scheduling method] depending on the queue identifier, wherein [the] corresponding connection parameters which are representative of upper transmission rates of the data packets are limited during the transmission process.

8. (Amended) A method as claimed in claim [8] 7, wherein the first [scheduling method is] scheduler employs a weighted fair queueing scheduling algorithm.

9. (Amended) A method as claimed in claim [8] 7, further comprising the step of:

providing an input device which contains a table which includes [the] current [filling] storage levels of buffer stores for storing the data packets.

10. (Amended) A method as claimed in claim [9] 8, further comprising the step of:

providing an input device which contains a table which includes [the] current [filling] storage levels of buffer stores for storing the data packets and generates a control signal based on the data packet identifier and the current storage levels for controlling the first and second schedulers.

11. (Amended) A method as claimed in claim [10] 9, further comprising the step of:

feeding back a result of reading out [providing an output device for taking] the data packets from at least one of the buffer stores representative of the current storage levels of the buffer stores[, depending on control data which are obtained from the first scheduling method, and acknowledging such process] to the input device.

12. (Amended) A method as claimed in claim 11, further comprising the step of :

influencing the operation of the second scheduler based on the result fed back to the input device [providing an output device for taking the data packets from at least one of the buffer stores, depending on control data which are obtained from the first scheduling method, and acknowledging such process to the input device].

13. (Amended) A method as claimed in claim [8] 7, further comprising the step of [wherein] entering the queue identifier [is entered] while the connection is being set up.

14. (Amended) A method as claimed in claim [9] 8, further comprising the step of [wherein] entering the queue identifier [is entered] while the connection is being set up.

15. (Amended) A method as claimed in claim [8] 7, wherein the data packets are ATM cells.

16. (Amended) A method as claimed in claim [9] 8, wherein the data packets are ATM cells.

Please add new claims 17-23 as follows:

17. A method as claimed in claim 7, further comprising the step of controlling the operation of the first scheduler dependent on a result of the second scheduler.

18. A method for transmission of data packets of a connection utilizing a system having a first scheduler for scheduling a lower transmission rate for the data packets and a second scheduler for scheduling an upper transmission rate for the data packets, comprising the steps of:

deciding whether to limit a rate for a particular connection;

supplying, in response to a decision not to limit the rate of the particular connection, a lower limit control signal to the first scheduler such that the lower limit control signal bypasses the second scheduler;

limiting, by action of the first scheduler, the lower transmission rate of the particular connection in response to the lower limit control signal;

supplying, in response to a decision to limit cell rate for the particular connection, an upper limit control signal to the second scheduler;

limiting, by action of the second scheduler, the upper transmission rate of the particular connection in response to the upper limit control signal;

generating, by the second scheduler, an initial planning control signal that in part represents a scheduling of the second scheduler; and

setting the lower transmission rate of the particular connection by the first scheduler in response to the initial planning control signal generated by the second scheduler.

19. The method of claim 15, further comprising the step of feeding back a result of a transmitted data packet to assist in the determination whether the transmission rate of a later data packet should be limited.

20. The method of claim 16, further comprising the step of storing a table indicating which connections require limiting during transmission.

21. An apparatus for transmission of data packets of a connection, comprising:

a first scheduler that limits a lower transmission rate for the data packets when it is desired not to limit a transmission rate of the data packets;

a second scheduler that limits an upper transmission rate for the data packets when it is desired to limit the transmission rate of the data packets, generates an initial planning control signal that takes into account scheduling in the second scheduler and supplies the first scheduler with the initial planning control signal, wherein the first scheduler limits the lower transmission rate in accordance with the initial planning control signal when the transmission rate of the data packets are to be limited.

22. The apparatus of claim 18, further comprising an output device that feeds back a result of transmitting the data packets indicative of an actual output rate.

23. The apparatus of claim 19, further comprising an input device for comparing the feed back result to data and adjusting operation of the first scheduler and second scheduler to account for the actual output rate of the data packets.